Contents of Volume 78

NO. 1. JULY 1997

Glucocorticoid Receptor Activation Lowers the Threshold for NMDA-Receptor-Dependent Homosynaptic Long-Term Depression in the Hippocampus Through Activation of Voltage-Dependent Calcium Channels
C. M. Coussens, D. S. Kerr, and W. C. Abraham 1

Calcium Dynamics in Thorny Excrescences of CA3 Pyramidal Neurons
D. B. Jaffe and T. H. Brown 10

Low-Frequency Depression of the Monosynaptic Reflex Is Not Altered by Tetrodotoxin-Induced Nerve Conduction Blockade
K. L. Seburn and T. C. Cope 19

Origin of the Apparent Asynchronous Activity of Hippocampal Mossy Fibers
D. A. Henze, N. N. Urban, and G. Barrionuevo 24

Differential Effects of NGF and BDNF on Axotomy-Induced Changes in $GABA_A$-Receptor-Mediated Conductance and Sodium Currents in Cutaneous Afferent Neurons
A. A. Oyelese, M. A. Rizzo, S. G. Waxman, and J. D. Kocsis 31

Cannabinoids Inhibit N- and P/Q-Type Calcium Channels in Cultured Rat Hippocampal Neurons
W. Twitchell, S. Brown, and K. Mackie 43

Static and Dynamic Membrane Properties of Large-Terminal Bipolar Cells From Goldfish Retina: Experimental Test of a Compartment Model
S. Mennerick, D. Zenisek, and G. Matthews 51

Metabotropic Glutamate Receptor Agonists Alter Neuronal Excitability and Ca^{2+} Levels via the Phospholipase C Transduction Pathway in Cultured Purkinje Neurons
J. G. Netzeband, K. L. Parsons, D. D. Sweeney, and D. L. Gruol 63

Contextual Conditioned Fear Blocks the Induction But Not the Maintenance of Lateral Septal LTP in Behaving Mice
R. Garcia, R. M. Vouimba, and R. Jaffard 76

Rapidly Deactivating AMPA Receptors Determine Excitatory Synaptic Transmission to Interneurons in the Nucleus Tractus Solitarius From Rat
S. Titz and B. U. Keller 82

Passive Properties of Swimmeret Motor Neurons
C. M. Sherff and B. Mulloney 92

Quantifying the Role of Inhibition in Associative Long-Term Potentiation in Dentate Granule Cells With Computational Models
W. R. Holmes and W. B. Levy 103

Control of Forces Applied by Individual Fingers Engaged in Restraint of an Active Object
M.K.O. Burstedt, I. Birznieks, B. B. Edin, and R. S. Johansson 117

Electrophysiological Properties of Lumbar Motoneurons in the α-Chloralose-Anesthetized Cat During Carbachol-Induced Motor Inhibition
M.-C. Xi, R.-H. Liu, J. Yamuy, F. R. Morales, and M. H. Chase 129

Dorsal Spinocerebellar Tract Neurons Are Not Subjected to Postsynaptic Inhibition During Carbachol-Induced Motor Inhibition
M.-C. Xi, J. Yamuy, R.-H. Liu, F. R. Morales, and M. H. Chase 137

Anticipatory Time Intervals of Head-Direction Cells in the Anterior Thalamus of the Rat: Implications for Path Integration in the Head-Direction Circuit
H. T. Blair, B. W. Lipscomb, and P. E. Sharp 145

Binaral Interactions in the Rat Piriform Cortex
D. A. Wilson 160

Pulmonary Afferents Are Not Necessary for the Reflex Inhibition of Human Inspiratory Muscles Produced by Airway Occlusion
J. E. Butler, D. K. McKenzie, A. R. Glanville, and S. C. Gandevia 170
Hyperpolarization-Activated Currents in the Growth Cone and Soma of Neonatal Rat Dorsal Root Ganglion Neurons in Culture
Z. Wang, R. J. Van den Berg, and D. L. Ypey 177
Modification of Current Transmitted From Apical Dendrite to Soma by Blockade of Voltage- and Ca^{2+}-Dependent Conductances in Rat Neocortical Pyramidal Neurons
P. C. Schwindt and W. E. Crill 187
Stimulus-Dependent Modulation of Spike Burst Length in Cat Striate Cortical Cells
B. C. DeBusk, E. J. DeBruyn, R. K. Snider, J. F. Kabara, and A. B. Bonds 199
Descending Control of Turning Locomotor Activity in Larval Lamprey: Neurophysiology and Computer Modeling
A. D. McClellan and A. Hagevik 214
Evidence of Stimulus-Dependent Correlated Activity in the Dorsal Cochlear Nucleus of Decerebrate Gerbils
K. A. Davis and H. F. Voigt 229
Physiological Identification of the Targets of Cartwheel Cells in the Dorsal Cochlear Nucleus
N. L. Golding and D. Oertel 248
Mechanical Responses to Two-Tone Distortion Products in the Apical and Basal Turns of the Mammalian Cochlea
N. P. Cooper and W. S. Rhode 261
Wrist Action Affects Precision Grip Force
M. M. Werremeyer and K. J. Cole 271
Synaptic Physiology and Mitochondrial Function in Crayfish Tonic and Phasic Motor Neurons
P. V. Nguyen, L. Marin, and H. L. Atwood 281
Effects of the Gliotoxin Fluorocitrate on Spreading Depression and Glial Membrane Potential in Rat Brain In Situ
C. Largo, J. M. Ibarz, and O. Herreras 295
Coordination of Startle and Swimming Neural Systems in the Pteropod Mollusk *Clione limacina*: Role of the Cerebral Cholinergic Interneuron
T. P. Norekian 308
Differing Mechanisms of Expression for Short- and Long-Term Potentiation
P. E. Schulz and J. C. Fitzgibbons 321
Intracellular and Computational Characterization of the Intracortical Inhibitory Control of Synchronized Thalamic Inputs In Vivo
D. Contreras, A. Destexhe, and M. Steriade 335
Binocular Spatial Phase Tuning Characteristics of Neurons in the Macaque Striate Cortex
E. L. Smith III, Y. M. Chino, J. Ni, W. H. Ridder III, and M.L.J. Crawford 351
Binocular Combination of Contrast Signals by Striate Cortical Neurons in the Monkey
E. L. Smith III, Y. Chino, J. Ni, and H. Cheng 366
Developmental Changes in the Hypoxic Response of the Hypoglossus Respiratory Motor Output In Vitro
J. M. Ramirez, U.J.A. Quellmalz, and B. Wilken 383
GABAergic Modulation of Hippocampal Population Activity: Sequence Learning, Place Field Development, and the Phase Precession Effect
G. V. Wallenstein and M. E. Hasselmo 393
Role of Calcium-Calmodulin–Dependent Protein Kinase II in Modulation of Sensorimotor Synapses in *Aplysia*
K. Nakanishi, F. Zhang, D. A. Baxter, A. Eskin, and J. H. Byrne 409

Facilitation at the Lobster Neuromuscular Junction: A Stimulus-Dependent Mobilization Model
M. K. Worden, M. Bykhovskaia, and J. T. Hackett 417
Differential Control of Reciprocal Inhibition During Walking Versus Postural and Voluntary Motor Tasks in Humans
B. A. Lavoie, H. Devanne, and C. Capaday 429
Endogenous Activation of Dopamine D2 Receptors Regulates Dopamine Release in the Fish Retina
Y. Wang, K. Harsanyi, and S. C. Mangel 439
Cerebral Processing of Acute Skin and Muscle Pain in Humans
P. Svensson, S. Minoshima, A. Beydoun, T. J. Morrow, and K. L. Casey 450
Postnatal Development of Ionic Currents in Rat Hippocampal Astrocytes In Situ
A. Bordey and H. Sontheimer 461
Relationship of Cerebellar Purkinje Cell Simple Spike Discharge to Movement Kinematics in the Monkey
Q.-G. Fu, D. Flament, J. D. Coltz, and T. J. Ebner 478
Tensile and Compressive Responses of Nociceptors in Rat Hairy Skin
P. S. Khalsa, R. H. LaMotte, and P. Grigg 492

RAPID COMMUNICATIONS

Nonlinear Processing of Tactile Information in the Thalamocortical Loop
A. A. Ghazanfar and M.A.L. Nicolelis 506
Neurons Sensitive to Interaural Temporal Disparities in the Medial Part of the Ventral Nucleus of the Lateral Lemniscus
R. Batra and D. C. Fitzpatrick 511
Graded Effects of Spatial and Featural Attention on Human Area MT and Associated Motion Processing Areas
M. S. Beauchamp, R. W. Cox, and E. A. DeYoe 516
Nucleus Gracilis: An Integrator for Visceral and Somatic Information
E. D. Al-Chaer, K. N. Westlund, and W. D. Willis 521
Long-Term Synaptic Plasticity in the Honeybee
S. Oleskevich, J. D. Clements, and M. V. Srinivasan 528
Local Feedback Signals Are Not Distorted By Prior Eye Movements: Evidence From Visually Evoked Double Saccades
H.H.L.M. Goossens and A. J. Van Opstal 533
Role of Group I Metabotropic Glutamate Receptors in the Patterning of Epileptiform Activities In Vitro
L. R. Merlin and R.K.S. Wong 539
Psychophysical Properties of the Trunk Midline
G. Spidalieri and R. Sgolastra 545
$GABA_B$ Receptor-Mediated Inhibition in Developing Mouse Ventral Posterior Thalamic Nucleus
R. A. Warren, P. Golshani, and E. G. Jones 550
The Motor System Does Not Learn the Dynamics of the Arm by Rote Memorization of Past Experience
M. A. Conditt, F. Gandolfo, and F. A. Mussa-Ivaldi 554
Adrenoceptor-Mediated Elevation of Ambient GABA Levels Activates Presynaptic $GABA_B$ Receptors in Rat Sensorimotor Cortex
B. D. Bennett, J. R. Huguenard, and D. A. Prince 561
Neuronal Activity in the Ventral Part of Premotor Cortex During Target-Reach Movement is Modulated by Direction of Gaze
H. Mushiake, Y. Tanatsugu, and J. Tanji 567

NO. 2. AUGUST 1997

Subcortical Modulation of High-Frequency (Gamma Band) Oscillating Potentials in Auditory Cortex
B. Brett and D. S. Barth 573

Potentiation of NMDA Receptor-Mediated Responses by Dynorphin at Low Extracellular Glycine Concentrations
L. Zhang, R. W. Peoples, M. Oz, J. Harvey-White, F. F. Weight, and U. Brauneis 582

Isoflurane Attenuates Resonant Responses of Auditory Thalamic Neurons
F. Tennigkeit, C. R. Ries, D.W.F. Schwarz, and E. Puil 591

Task-Dependent Representations in Rat Hippocampal Place Neurons
T. Kobayashi, H. Nishijo, M. Fukuda, J. Bures, and T. Ono 597

Membrane Properties and Monosynaptic Retinal Excitation of Neurons in the Turtle Accessory Optic System
N. Kogo and M. Ariel 614

Spinal Strychnine Alters Response Properties of Nociceptive-Specific Neurons in Rat Medial Thalamus
S. E. Sherman, L. Luo, and J. O. Dostrovsky 628

Epaxial and Limb Muscle Activity During Swimming and Terrestrial Stepping in the Adult Newt, *Pleurodeles waltl*
I. Delvolvé, T. Bem, and J.-M. Cabelguen 638

Local and Propagated Vascular Responses Evoked by Focal Synaptic Activity in Cerebellar Cortex
C. Iadecola, G. Yang, T. J. Ebner, and G. Chen 651

Arm Position Constraints During Pointing and Reaching in 3-D Space
C.C.A.M. Gielen, E. J. Vrijenhoek, T. Flash, and S.F.W. Neggers 660

Dopamine Inhibition: Enhancement of GABA Activity and Potassium Channel Activation in Hypothalamic and Arcuate Nucleus Neurons
A. B. Belousov and A. N. van den Pol 674

Correlation of Peripheral Innervation Density and Dorsal Horn Map Scale
L. Wang, R. Millecchia, and P. B. Brown 689

Comparative Electrotonic Analysis of Three Classes of Rat Hippocampal Neurons
N. T. Carnevale, K. Y. Tsai, B. J. Claiborne, and T. H. Brown 703

Direct and Indirect Corticospinal Control of Arm and Hand Motoneurons in the Squirrel Monkey (*Saimiri sciureus*)
M. A. Maier, E. Olivier, S. N. Baker, P. A. Kirkwood, T. Morris, and R. N. Lemon 721

Electrophysiological Evidence for Two Transduction Pathways Within a Bitter-Sensitive Taste Receptor
J. I. Glendinning and T. T. Hills 734

Biphasic Modulation of Spinal Nociceptive Transmission From the Medullary Raphe Nuclei in the Rat
M. Zhuo and G. F. Gebhart 746

Involvement of cAMP-Dependent Protein Kinase in μ-Opioid Modulation of NMDA-Mediated Synaptic Currents
C.-W. Xie and D. V. Lewis 759

Response Properties of Neurons in the Inferior Colliculus of the Monaurally Deafened Ferret to Acoustic Stimulation of the Intact Ear
D. McAlpine, R. L. Martin, J. E. Mossop, and D. R. Moore 767

Modulation of Ca^{2+} Currents by Various G Protein-Coupled Receptors in Sympathetic Neurons of Male Rat Pelvic Ganglia
Y. Zhu and J. L. Yakel 780

Linear and Nonlinear Spectral Integration in Type IV Neurons of the Dorsal Cochlear Nucleus. I. Regions of Linear Interaction
I. Nelken and E. D. Young 790

Linear and Nonlinear Spectral Integration in Type IV Neurons of the Dorsal Cochlear Nucleus. II. Predicting Responses With the Use of Nonlinear Models
I. Nelken, P. J. Kim, and E. D. Young 800
Feeding Stimulants Activate an Identified Dopaminergic Interneuron That Induces the Feeding Motor Program in *Helisoma*
E. M. Quinlan, B. C. Arnett, and A. D. Murphy 812
Activity-Dependent $[Ca^{2+}]_i$ Changes in Guinea Pig Vagal Motoneurons: Relationship to the Slow Afterhyperpolarization
N. Lasser-Ross, W. N. Ross, and Y. Yarom 825
Differential Activation of Glutamate Receptor Subtypes on a Single Class of Cells Enables a Neural Oscillator To Produce Distinct Behaviors
J. E. Spiro 835
Participation of Caudal Fastigial Nucleus in Smooth Pursuit Eye Movements II. Effects of Muscimol Inactivation
F. R. Robinson, A. Straube, and A. F. Fuchs 848
Five Sources of a Dorsal Root Potential: Their Interactions and Origins in the Superficial Dorsal Horn
P. D. Wall and M. Lidierth 860
Mechanisms of Onset Responses in Octopus Cells of the Cochlear Nucleus: Implications of a Model
Y. Cai, E. J. Walsh, and J. McGee 872
Voltage-Dependent Gating of ATP-Activated Channels in PC12 Cells
K. Nakazawa, M. Liu, K. Inoue, and Y. Ohno 884
Mechanisms Underlying the Rapid Depolarization Produced by Deprivation of Oxygen and Glucose in Rat Hippocampal CA1 Neurons In Vitro
E. Tanaka, S. Yamamoto, Y. Kudo, S. Mihara, and H. Higashi 891
Factors That Reverse the Persistent Depolarization Produced by Deprivation of Oxygen and Glucose in Rat Hippocampal CA1 Neurons In Vitro
S. Yamamoto, E. Tanaka, Y. Shoji, Y. Kudo, H. Inokuchi, and H. Higashi 903
Evolution of Anisotropic Diffusion in the Developing Rat Corpus Callosum
I. Vořišek and E. Syková 912
Anterior and Posterior Oral Cavity Responsive Neurons Are Differentially Distributed Among Parabrachial Subnuclei in Rat
C. B. Halsell and S. P. Travers 920
Effects of Inactivating Individual Cerebellar Nuclei on the Performance and Retention of an Operantly Conditioned Forelimb Movement
M. S. Milak, Y. Shimansky, V. Bracha, and J. R. Bloedel 939
Visual Pathways for Postural Control and Negative Phototaxis in Lamprey
F. Ullén, T. G. Deliagina, G. N. Orlovsky, and S. Grillner 960
Frontal and Parietal Networks for Conditional Motor Learning: A Positron Emission Tomography Study
M.-P. Deiber, S. P. Wise, M. Honda, M. J. Catalan, J. Grafman, and M. Hallett 977
Characteristics of Temporal Summation of Second Pain Sensations Elicited by Brief Contact of Glabrous Skin by a Preheated Thermode
C. J. Vierck, Jr., R. L. Cannon, G. Fry, W. Maixner, and B. L. Whitsel 992
Effects of Kappa Opioid Receptor-Selective Agonists on Responses of Pelvic Nerve Afferents to Noxious Colorectal Distension
X. Su, J. N. Sengupta, and G. F. Gebhart 1003
Mechanisms Underlying the Chronotropic Effect of Angiotensin II on Cultured Neurons From Rat Hypothalamus and Brain Stem
D. Wang, C. H. Gelband, C. Sumners, and P. Posner 1013
A-Type K^+ Current in Neurons Cultured From Neonatal Rat Hypothalamus and Brain Stem: Modulation by Angiotensin II
D. Wang, C. Sumners, P. Posner, and C. H. Gelband 1021

Sequence of Single Neuron Changes in CA1 Hippocampus of Rabbits During Acquisition of Trace Eyeblink Conditioned Responses
M. D. McEchron and J. F. Disterhoft 1030
Spatiotemporal Receptive Field Organization in the Lateral Geniculate Nucleus of Cats and Kittens
D. Cai, G. C. DeAngelis, and R. D. Freeman 1045
Object and Place Memory in the Macaque Entorhinal Cortex
W. A. Suzuki, E. K. Miller, and R. Desimone 1062
Hyperexcitability in Combined Entorhinal/Hippocampal Slices of Adult Rat After Exposure to Brain-Derived Neurotrophic Factor
H. E. Scharfman 1082
Experimental Down-Regulation of the NMDA Channel Associated With Synapse Pruning
P. W. Hickmott and M. Constantine-Paton 1096
Effect of Remote Distractors on Saccade Programming: Evidence for an Extended Fixation Zone
R. Walker, H. Deubel, W. X. Schneider, and J. M. Findlay 1108
Model With Distributed Vectorial Premotor Bursters Accounts for the Component Stretching of Oblique Saccades
C. Quaia and L. M. Optican 1120
N-Methyl-D-Aspartate Evokes Rapid Net Depolymerization of Filamentous Actin in Cultured Rat Cerebellar Granule Cells
S. L. Shorte 1135

RAPID COMMUNICATIONS

Central Versus Peripheral Determinants of Patterned Spike Activity in Rat Vibrissa Cortex During Whisking
M. S. Fee, P. P. Mitra, and D. Kleinfeld 1144
Regional Variability of Stretch Reflex Amplitude in the Cat Medial Gastrocnemius Muscle During a Postural Task
J. J. Eng and J. A. Hoffer 1150
Reversal of LTP in the Hippocampal Afferent Fiber System to the Prefrontal Cortex In Vivo With Low-Frequency Patterns of Stimulation That Do Not Produce LTD
F. Burette, T. M. Jay, and S. Laroche 1155
Calcineurin Modulates G Protein-Mediated Inhibition of N-Type Calcium Channels in Rat Sympathetic Neurons
Y. Zhu and J. L. Yakel 1161
Conditional Oculomotor Learning: Population Vectors in the Supplementary Eye Field
L. L. Chen and S. P. Wise 1166
Systematic Changes in Directional Tuning of Motor Cortex Cell Activity With Hand Location in the Workspace During Generation of Static Isometric Forces in Constant Spatial Directions
L. E. Sergio and J. F. Kalaska 1170
Potentiation of NMDA Currents by Pituitary Adenylate Cyclase Activating Polypeptide in Neonatal Rat Sympathetic Preganglionic Neurons
S. Y. Wu and N. J. Dun 1175
Antidromic Modulation of a Proprioceptor Sensory Discharge in Crayfish
M. Bévengut, F. Clarac, and D. Cattaert 1180
Enhanced Synaptic Transmission in CA1 Hippocampus After Eyeblink Conditioning
J. M. Power, L. T. Thompson, J. R. Moyer, Jr., and J. F. Disterhoft 1184
Evidence for Persistent Na^+ Current in Apical Dendrites of Rat Neocortical Neurons From Imaging of Na^+-Sensitive Dye
T. Mittmann, S. M. Linton, P. Schwindt, and W. Crill 1188

Contribution of Vestibular Commissural Pathways to Spatial Orientation of the Angular Vestibuloocular Reflex
S. Wearne, T. Raphan, and B. Cohen 1193

NO. 3. SEPTEMBER 1997

Propagating Neuronal Discharges in Neocortical Slices: Computational and Experimental Study
D. Golomb and Y. Amitai 1199
Hypoxia-Induced Dysfunction in Developing Rat Neocortex
H. J. Luhmann and T. Kral 1212
Sensitivity to Interaural Temporal Disparities of Low- and High-Frequency Neurons in the Superior Olivary Complex. I. Heterogeneity of Responses
R. Batra, S. Kuwada, and D. C. Fitzpatrick 1222
Sensitivity to Interaural Temporal Disparities of Low- and High-Frequency Neurons in the Superior Olivary Complex. II. Coincidence Detection
R. Batra, S. Kuwada, and D. C. Fitzpatrick 1237
Dopaminergic Modulation of Excitatory Postsynaptic Currents in Rat Neostriatal Neurons
M. Umemiya and L. A. Raymond 1248
Properties of a Ca^{2+}-Activated K^+ Conductance in Acutely Isolated Pyramidal-Like Neurons From the Rat Basolateral Amygdaloid Complex
S. Meis and H.-C. Pape 1256
Sensory Modality Specificity of Neural Activity Related to Memory in Visual Cortex
J. R. Gibson and J.H.R. Maunsell 1263
Plasticity of Synaptic Connections in Sensory-Motor Pathways of the Adult Locust Flight System
H. Wolf and A. Büschges 1276
Inhibition of Bradykinin-Induced Plasma Extravasation Produced by Noxious Cutaneous and Visceral Stimuli and Its Modulation by Vagal Activity
F.J.-P. Miao, W. Jänig, P. G. Green, and J. D. Levine 1285
Are Some Minis Multiquantal?
M. Frerking, S. Borges, and M. Wilson 1293
Different Roles of Neurons B63 and B34 That Are Active During the Protraction Phase of Buccal Motor Programs in *Aplysia californica*
I. Hurwitz, I. Kupfermann, and A. J. Susswein 1305
Prolonged Physiological Entrapment of Glutamate in the Synaptic Cleft of Cerebellar Unipolar Brush Cells
G. A. Kinney, L. S. Overstreet, and N. T. Slater 1320
Calcium Channel Subtypes in Lamprey Sensory and Motor Neurons
A. El Manira and N. Bussières 1334
Neurotensin and Substance P Inhibit Low- and High-Voltage-Activated Ca^{2+} Channels in Cultured Newborn Rat Nucleus Basalis Neurons
M. Margeta-Mitrovic, J. J. Grigg, K. Koyano, Y. Nakajima, and S. Nakajima 1341
Residual Binocular Interactions in the Striate Cortex of Monkeys Reared With Abnormal Binocular Vision
E. L. Smith III, Y. M. Chino, J. Ni, H. Cheng, M.L.J. Crawford, and R. S. Harwerth 1353
Canal-Specific Excitation and Inhibition of Frog Second-Order Vestibular Neurons
H. Straka, S. Biesdorf, and N. Dieringer 1363
Spatial Processing in the Monkey Frontal Eye Field. I. Predictive Visual Responses
M. M. Umeno and M. E. Goldberg 1373
Vasopressin/Oxytocin-Related Conopressin Induces Two Separate Pacemaker Currents in an Identified Central Neuron of *Lymnaea stagnalis*
P. F. van Soest and K. S. Kits 1384

Spinal Cord Coordination of Hindlimb Movements in the Turtle: Intralimb Temporal Relationships During Scratching and Swimming
E. C. Field and P.S.G. Stein 1394
Spinal Cord Coordination of Hindlimb Movements in the Turtle: Interlimb Temporal Relationships During Bilateral Scratching and Swimming
E. C. Field and P.S.G. Stein 1404
Functional Respiratory Rhythm Generating Networks in Neonatal Mice Lacking NMDAR1 Gene
G. D. Funk, S. M. Johnson, J. C. Smith, X.-W. Dong, J. Lai, and J. L. Feldman 1414
Representation of Multiple Kinematic Parameters of the Cat Hindlimb in Spinocerebellar Activity
G. Bosco and R. E. Poppele 1421
Neuronal Responses in Visual Areas MT and MST During Smooth Pursuit Target Selection
V. P. Ferrera and S. G. Lisberger 1433
Visual-Motor Transformations Required for Accurate and Kinematically Correct Saccades
J. D. Crawford and D. Guitton 1447
Modulation of mEPSCs in Olfactory Bulb Mitral Cells by Metabotropic Glutamate Receptors
N. E. Schoppa and G. L. Westbrook 1468
Muscarinic Receptor Activation Modulates Ca^{2+} Channels in Rat Intracardiac Neurons via a PTX- and Voltage-Sensitive Pathway
S.-W. Jeong and R. D. Wurster 1476
Regulation of Muscle Stiffness During Periodic Length Changes in the Isolated Abdomen of the Hermit Crab
W. D. Chapple 1491
Interneurons in Area CA1 Stratum Radiatum and Stratum Oriens Remain Functionally Connected to Excitatory Synaptic Input in Chronically Epileptic Animals
D. A. Rempe, E. H. Bertram, J. M. Williamson, and E. W. Lothman 1504
Functional Properties of Neurons in the Primate Tongue Primary Motor Cortex During Swallowing
R. E. Martin, G. M. Murray, P. Kemppainen, Y. Masuda, and B. J. Sessle 1516
Simulated Recruitment of Medial Rectus Motoneurons by Abducens Internuclear Neurons: Synaptic Specificity vs. Intrinsic Motoneuron Properties
P. Dean 1531
Characterization of Biphasic Modulation of Spinal Nociceptive Transmission by Neurotensin in the Rat Rostral Ventromedial Medulla
M. O. Urban and G. F. Gebhart 1550
Tyrosine Phosphorylation Modulates Current Amplitude and Kinetics of a Neuronal Voltage-Gated Potassium Channel
D. A. Fadool, T. C. Holmes, K. Berman, D. Dagan, and I. B. Levitan 1563
Responses of Intraparietal Neurons to Saccadic Targets and Visual Distractors
M. L. Platt and P. W. Glimcher 1574
Properties of Individual Embryonic Primary Afferents and Their Spinal Projections in the Rat
K. Mirnics and H. R. Koerber 1590
Viewer-Centered Frame of Reference for Pointing to Memorized Targets in Three-Dimensional Space
J. McIntyre, F. Stratta, and F. Lacquaniti 1601
Tangential Torque Effects on the Control of Grip Forces When Holding Objects With a Precision Grip
H. Kinoshita, L. Bäckström, J. R. Flanagan, and R. S. Johansson 1619

Synaptic Activation of Ca^{2+} Action Potentials in Immature Rat Cerebellar Granule Cells In Situ
E. D'Angelo, G. De Filippi, P. Rossi, and V. Taglietti 1631
Plasticity in Reflex Pathways Controlling Stepping in the Cat
P. J. Whelan and K. G. Pearson 1643
Neuropeptide Y Suppresses Epileptiform Activity in Rat Hippocampus In Vitro
G. J. Klapstein and W. F. Colmers 1651
Delayed Signal Propagation via CA2 in Rat Hippocampal Slices Revealed by Optical Recording
Y. Sekino, K. Obata, M. Tanifuji, M. Mizuno, and J. Murayama 1662
Activity of Cells in the Deeper Layers of the Superior Colliculus of the Rhesus Monkey: Evidence for a Gaze Displacement Command
E. G. Freedman and D. L. Sparks 1669
Neonatal Whisker Removal Reduces the Discrimination of Tactile Stimuli by Thalamic Ensembles in Adult Rats
M.A.L. Nicolelis, R.C.S. Lin, and J. K. Chapin 1691
Light Scattering Changes Follow Evoked Potentials From Hippocampal Schaeffer Collateral Stimulation
D. M. Rector, G. R. Poe, M. P. Kristensen, and R. M. Harper 1707

RAPID COMMUNICATIONS

Repeated Patterns of Distributed Synchrony in Neuronal Assemblies
B. G. Lindsey, K. F. Morris, R. Shannon, and G. L. Gerstein 1714
In Vitro Investigation of Synaptic Relations Between Interneurons Surrounding the Trigeminal Motor Nucleus and Masseteric Motoneurons
A. Kolta 1720
Two Conductances Mediate Thyrotropin-Releasing-Hormone-Induced Depolarization of Neonatal Rat Spinal Preganglionic and Lateral Horn Neurons
M. Kolaj, S. J. Shefchyk, and L. P. Renaud 1726
Dorsal Column but Not Lateral Column Transection Prevents Down-Conditioning of H Reflex in Rats
X. Y. Chen and J. R. Wolpaw 1730
Differential Impact of Miniature Synaptic Potentials on the Soma and Dendrites of Pyramidal Neurons In Vivo
D. Paré, E. Lebel, and E. J. Lang 1735
Depolarization-Induced Facilitation of a Plateau-Generating Current in Ventral Horn Neurons in the Turtle Spinal Cord
G. Svirskis and J. Hounsgaard 1740
Selective Cholinergic Modulation of Cortical GABAergic Cell Subtypes
Y. Kawaguchi 1743
$GABA_A$-Receptor-Mediated Rebound Burst Firing and Burst Shunting in Thalamus
D. Ulrich and J. R. Huguenard 1748

NO. 4. OCTOBER 1997

Eye Movement Deficits After Ibotenic Acid Lesions of the Nucleus Prepositus Hypoglossi in Monkeys. I. Saccades and Fixation
C.R.S. Kaneko 1753
Attenuation of Preparatory Activity for Reaching Movements by a D1-Dopamine Antagonist in the Monkey Premotor Cortex
T. Sawaguchi 1769
Dynamics of Squirrel Monkey Linear Vestibuloocular Reflex and Interactions with Fixation Distance
L. Telford, S. H. Seidman, and G. D. Paige 1775

Change of Transmitter Release Kinetics During Facilitation Revealed by Prolonged Test Pulses at the Inhibitor of the Crayfish Opener Muscle
A. Vyshedskiy and J.-W. Lin 1791
Two Types of Actions of Norepinephrine on Identified Auditory Efferent Neurons in Rat Brain Stem Slices
X. Wang and D. Robertson 1800
Cellular Mechanisms Underlying Spontaneous Firing in Rat Suprachiasmatic Nucleus: Involvement of a Slowly Inactivating Component of Sodium Current
C.M.A. Pennartz, M. A. Bierlaagh, and A.M.S. Geurtsen 1811
Fast, Slow, and Steady-State Effects of Contralateral Acoustic Activation of the Medial Olivocochlear Efferent System in Awake Guinea Pigs: Action of Gentamicin
D. L. Da Costa, A. Chibois, J.-P. Erre, C. Blanchet, R. C. de Sauvage, and J.-M. Aran 1826
Different Sensitivities to pH of ATP-Induced Currents at Four Cloned P2X Receptors
R. Stoop, A. Surprenant, and R. A. North 1837
Receptive Properties of Mouse Sensory Neurons Innervating Hairy Skin
M. Koltzenburg, C. L. Stucky, and G. R. Lewin 1841
Analysis of EPSCs and IPSCs Carrying Rhythmic, Locomotor-Related Information in the Isolated Spinal Cord of the Neonatal Rat
M. Raastad, B. R. Johnson, and O. Kiehn 1857
Spontaneous Excitatory Currents and κ-Opioid Receptor Inhibition in Dentate Gyrus Are Increased in the Rat Pilocarpine Model of Temporal Lobe Epilepsy
M. L. Simmons, G. W. Terman, and C. Chavkin 1860
Excitatory Amino Acid Receptors at a Feedback Pathway in the Electrosensory System: Implications for the Searchlight Hypothesis
N. J. Berman, J. Plant, R. W. Turner, and L. Maler 1869
In Vitro Plasticity of the Direct Feedback Pathway in the Electrosensory System of *Apteronotus leptorhynchus*
D. Wang and L. Maler 1882
Passive and Active Membrane Properties of Isolated Rat Intracardiac Neurons: Regulation by H- and M-Currents
J. Cuevas, A. A. Harper, C. Trequattrini, and D. J. Adams 1890
M_4 Muscarinic Receptor Activation Modulates Calcium Channel Currents in Rat Intracardiac Neurons
J. Cuevas and D. J. Adams 1903
Electrophysiological Properties of Vestibular Sensory and Supporting Cells in the Labyrinth Slice Before and During Regeneration
S. Masetto and M. J. Correia 1913
Mitochondrial Regulation of Calcium in the Avian Cochlear Nucleus
S. P. Mostafapour, E. A. Lachica, and E. W Rubel 1928
Impulse Encoding Mechanisms of Ganglion Cells in the Tiger Salamander Retina
J. F. Fohlmeister and R. F. Miller 1935
Mechanisms by Which Cell Geometry Controls Repetitive Impulse Firing in Retinal Ganglion Cells
J. F. Fohlmeister and R. F. Miller 1948
NMDA-Independent LTP by Adenosine A_2 Receptor-Mediated Postsynaptic AMPA Potentiation in Hippocampus
K. Kessey and D. J. Mogul 1965
Characterization of Long-Term Potentiation of C-Fiber-Evoked Potentials in Spinal Dorsal Horn of Adult Rat: Essential Role of NK1 and NK2 Receptors
X.-G. Liu and J. Sandkühler 1973
Calcium-Activated Cation Nonselective Current Contributes to the Fast Afterdepolarization in Rat Prefrontal Cortex Neurons
S. Haj-Dahmane and R. Andrade 1983

Cholecystokinin Activates CCKB-Receptor–Mediated Ca-Signaling in Hippocampal Astrocytes
W. Müller, U. Heinemann, and K. Berlin 1997
Processing of Color- and Noncolor-Coded Signals in the Gourami Retina I. Horizontal Cells
H. M. Sakai, H. Machuca, and K.-I. Naka 2002
Processing of Color- and Noncolor-Coded Signals in the Gourami Retina II. Amacrine Cells
H. M. Sakai, H. Machuca, and K.-I. Naka 2018
Processing of Color- and Noncolor-Coded Signals in the Gourami Retina III. Ganglion Cells
H. M. Sakai, H. Machuca, M. J. Korenberg, and K.-I. Naka 2034
Mosaic Arrangement of Ganglion Cell Receptive Fields in Rabbit Retina
S. H. DeVries and D. A. Baylor 2048
Activity-Dependent Potentiation of Synaptic Transmission From L30 Inhibitory Interneurons of *Aplysia* Depends on Residual Presynaptic Ca^{2+} But Not on Postsynaptic Ca^{2+}
T. M. Fischer, R. S. Zucker, and T. J. Carew 2061
Intravenous Morphine Increases Release of Nitric Oxide From Spinal Cord by an α-Adrenergic and Cholinergic Mechanism
Z. Xu, C. Tong, H.-L. Pan, S. E. Cerda, and J. C. Eisenach 2072
Ionic Selectivity of Mechanically Activated Channels in Spider Mechanoreceptor Neurons
U. Höger, P. H. Torkkeli, E.-A. Seyfarth, and A. S. French 2079
Ion Transport and Membrane Potential in CNS Myelinated Axons I. Normoxic Conditions
L. Leppanen and P. K. Stys 2086
Ion Transport and Membrane Potential in CNS Myelinated Axons II. Effects of Metabolic Inhibition
L. Leppanen and P. K. Stys 2095
Coactivation of Putative Octopamine- and Serotonin-Containing Interneurons in the Medicinal Leech
L. S. Gilchrist and K. A. Mesce 2108
Active Dendrites Reduce Location-Dependent Variability of Synaptic Input Trains
E. P. Cook and D. Johnston 2116
Human Gaze Stabilization During Natural Activities: Translation, Rotation, Magnification, and Target Distance Effects
B. T. Crane and J. L. Demer 2129
Relationship Between Sensory Stimuli–Elicited IPSPs in Motoneurons and PGO Waves During Cholinergically Induced Muscle Atonia
K. A. Kohlmeier, F. López-Rodríguez, F. R. Morales, and M. H. Chase 2145
Activity Linked to Externally Cued Saccades in Single Units Recorded From Hippocampal, Parahippocampal, and Inferotemporal Areas of Macaques
S. Sobotka, A. Nowicka, and J. L. Ringo 2156
Response Properties of Saccade-Related Burst Neurons in the Central Mesencephalic Reticular Formation
A. Handel and P. W. Glimcher 2164
Distribution and Activation of Intracellular Ca^{2+} Stores in Cultured Olfactory Bulb Neurons
G. C. Carlson, M. L. Slawecki, E. Lancaster, and A. Keller 2176
Excitatory and Inhibitory Inputs From Saccular Afferents to Single Vestibular Neurons in the Cat
Y. Uchino, H. Sato, and H. Suwa 2186
Kinematic Principles of Primate Rotational Vestibulo-Ocular Reflex I. Spatial Organization of Fast Phase Velocity Axes
B.J.M. Hess and D. E. Angelaki 2193

Kinematic Principles of Primate Rotational Vestibulo-Ocular Reflex II. Gravity-Dependent Modulation of Primary Eye Position
B.J.M. Hess and D. E. Angelaki 2203

RAPID COMMUNICATIONS

$GABA_A$-Mediated Local Synaptic Pathways Connect Neurons in the Rat Suprachiasmatic Nucleus
G. J. Strecker, J.-P. Wuarin, and F. E. Dudek 2217
Spatial Distribution and Discharge Characteristics of Superior Colliculus Neurons Antidromically Activated From the Omnipause Region in Monkey
N. J. Gandhi and E. L. Keller 2221
Object Representation in the Ventral Premotor Cortex (Area F5) of the Monkey
A. Murata, L. Fadiga, L. Fogassi, V. Gallese, V. Raos, and G. Rizzolatti 2226
$PACAP_{38}$ Modulates Activity of NMDA Receptors in Cultured Chick Cortical Neurons
G. J. Liu and B. W. Madsen 2231

NO. 5. NOVEMBER 1997

Hyperpolarization-Activated Inward Current in Neurons of the Rat's Dorsal Nucleus of the Lateral Lemniscus In Vitro
X. W. Fu, B. L. Brezden, and S. H. Wu 2235
Contribution of Outward Currents to Spike-Frequency Adaptation in Hypoglossal Motoneurons of the Rat
A. Sawczuk, R. K. Powers, and M. D. Binder 2246
Parabrachial Neural Coding of Taste Stimuli in Awake Rats
H. Nishijo and R. Norgren 2254
Properties of Calcium Spikes Revealed During $GABA_A$ Receptor Antagonism in Hippocampal CA1 Neurons From Guinea Pigs
M. Miura, M. Yoshioka, H. Miyakawa, H. Kato, and K.-I. Ito 2269
$GABA_A$ Receptor-Mediated Cl^- Currents in Rat Thalamic Reticular and Relay Neurons
S. J. Zhang, J. R. Huguenard, and D. A. Prince 2280
Metabotropic Glutamate Receptor Enhancement of Spontaneous IPSCs in Neocortical Interneurons
F.-M. Zhou and J. J. Hablitz 2287
Altered Receptive Fields and Sensory Modalities of Rat VPL Thalamic Neurons During Spinal Strychnine-Induced Allodynia
S. E. Sherman, L. Luo, and J. O. Dostrovsky 2296
Three Kinetically Distinct Ca^{2+}-Independent Depolarization-Activated K^+ Currents in Callosal-Projecting Rat Visual Cortical Neurons
R. E. Locke and J. M. Nerbonne 2309
Role of Voltage-Gated K^+ Currents in Mediating the Regular-Spiking Phenotype of Callosal-Projecting Rat Visual Cortical Neurons
R. E. Locke and J. M. Nerbonne 2321
Decoding Visual Information From a Population of Retinal Ganglion Cells
D. K. Warland, P. Reinagel, and M. Meister 2336
In Vitro Appetitive Classical Conditioning of the Feeding Response in the Pond Snail *Lymnaea stagnalis*
G. Kemenes, K. Staras, and P. R. Benjamin 2351
Neurotrophin Modulation of NMDA Receptors in Cultured Murine and Isolated Rat Neurons
C. R. Jarvis, Z.-G. Xiong, J. R. Plant, D. Churchill, W.-Y. Lu, B. A. MacVicar, and J. F. MacDonald 2363

Ion Currents and Mechanisms of Modulation in the Radula Opener Muscles of *Aplysia*
M. L. Scott, V. Brezina, and K. R. Weiss 2372
Acetylcholine Increases Intracellular Calcium of Arterial Chemoreceptor Cells of Adult Cats
M. Shirahata, R. S. Fitzgerald, and J.S.K. Sham 2388
Inhibitory Effects of Arachidonic Acid on Nicotinic Transmission in Bullfrog Sympathetic Neurons
S. Minota and S. Watanabe 2396
GABA Receptors of Bipolar Cells From the Skate Retina: Actions of Zinc on GABA-Mediated Membrane Currents
H. Qian, L. Li, R. L. Chappell, and H. Ripps 2402
Reaching Movements With Similar Hand Paths but Different Arm Orientations. II. Activity of Individual Cells in Dorsal Premotor Cortex and Parietal Area *5*
S. H. Scott, L. E. Sergio, and J. F. Kalaska 2413
Electrophysiological and Morphological Characteristics of Neurons in Perinuclear Zone of Supraoptic Nucleus
W. E. Armstrong and J. E. Stern 2427
First-Spike Timing of Auditory-Nerve Fibers and Comparison With Auditory Cortex
P. Heil and D.R.F. Irvine 2438
Electrical Properties of a Cockroach Motor Neuron Soma Depend on Different Characteristics of Individual Ca Components
J. D. Mills and R. M. Pitman 2455
Ca^{2+} Current in Rabbit Carotid Body Glomus Cells Is Conducted by Multiple Types of High-Voltage–Activated Ca^{2+} Channels
J. L. Overholt and N. R. Prabhakar 2467
Interaction Between Tetanus Long-Term Potentiation and Hypoxia-Induced Potentiation in the Rat Hippocampus
M. Lyubkin, D. M. Durand, and M. A. Haxhiu 2475
Calcium-Dependent Plateau Potentials in Rostral Ambiguus Neurons in the Newborn Mouse Brain Stem In Vitro
J. C. Rekling and J. L. Feldman 2483
Hippocampal Interneurons Are Excited Via Serotonin-Gated Ion Channels
L. L. McMahon and J. A. Kauer 2493
Monkey Cutaneous SAI and RA Responses to Raised and Depressed Scanned Patterns: Effects of Width, Height, Orientation, and a Raised Surround
D. T. Blake, K. O. Johnson, and S. S. Hsiao 2503
Quantal Organization of Reflex and Conditioned Eyelid Responses
J. A. Domingo, A. Gruart, and J. M. Delgado-García 2518
$GABA_A$-Mediated IPSCs in Piriform Cortex Have Fast and Slow Components With Different Properties and Locations on Pyramidal Cells
A. Kapur, R. A. Pearce, W. W. Lytton, and L. B. Haberly 2531
Regulation of the NMDA Component of EPSPs by Different Components of Postsynaptic GABAergic Inhibition: Computer Simulation Analysis in Piriform Cortex
A. Kapur, W. W. Lytton, K. L. Ketchum, and L. B. Haberly 2546
Receptive Properties of Embryonic Chick Sensory Neurons Innervating Skin
M. Koltzenburg and G. R. Lewin 2560
Conditions for the Induction of Long-Term Potentiation and Long-Term Depression by Conjunctive Pairing in the Dentate Gyrus In Vitro
Y. Wang, J. Wu, M. J. Rowan, and R. Anwyl 2569
LTP Induction Dependent on Activation of Ni^{2+}-Sensitive Voltage-Gated Calcium Channels, but not NMDA Receptors, in the Rat Dentate Gyrus In Vitro
Y. Wang, M. J. Rowan, and R. Anwyl 2574

Ionic Mechanisms of Spontaneous GABAergic Events in Rat Hippocampal Slices Exposed to 4-Aminopyridine
K. Lamsa and K. Kaila 2582
Inwardly Rectifying and Ca^{2+}-Permeable AMPA-Type Glutamate Receptor Channels in Rat Neocortical Neurons
S.-I. Itazawa, T. Isa, and S. Ozawa 2592
Converging Inputs to the Entorhinal Cortex From the Piriform Cortex and Medial Septum: Facilitation and Current Source Density Analysis
C. A. Chapman and R. J. Racine 2602
Stochastic Threshold Characterization of the Intensity of Active Channel Dynamical Action Potential Generation
R. M. Schmich and M. I. Miller 2616
Properties of Carbachol-Induced Oscillatory Activity in Rat Hippocampus
J. H. Williams and J. A. Kauer 2631
Innervation Territories of Mechanically Activated C Nociceptor Units in Human Skin
R. Schmidt, M. Schmelz, M. Ringkamp, H. O. Handwerker, and H. E. Torebjörk 2641
Effects of Pb^{2+} on Delayed-Rectifier Potassium Channels in Acutely Isolated Hippocampal Neurons
M. Madeja, U. Mußhoff, N. Binding, U. Witting, and E.-J. Speckmann 2649
Independent Coding of Wind Direction in Cockroach Giant Interneurons
A. Mizrahi and F. Libersat 2655
Response Sensitivity and Voltage Gain of the Rod- and Cone-Bipolar Cell Synapses in Dark-Adapted Tiger Salamander Retina
X.-L. Yang and S. M. Wu 2662
Ca^{2+}-Activated K^+ Currents in Rat Locus Coeruleus Neurons Induced by Experimental Ischemia, Anoxia, and Hypoglycemia
Y. Murai, H. Ishibashi, S. Koyama, and N. Akaike 2674
Mechanisms of Potentiation by Calcium-Calmodulin Kinase II of Postsynaptic Sensitivity in Rat Hippocampal CA1 Neurons
A. M. Shirke and R. Malinow 2682
A Fast Synaptic Potential Mediated by NMDA and Non-NMDA Receptors
L. R. Wolszon, A. E. Pereda, and D. S. Faber 2693
Attenuation of Paired-Pulse Facilitation Associated With Synaptic Potentiation Mediated by Postsynaptic Mechanisms
J.-H. Wang and P. T. Kelly 2707
Coding for Auditory Space in the Nucleus of the Brachium of the Inferior Colliculus in the Ferret
J.W.H. Schnupp and A. J. King 2717
Visual Response Properties and Visuotopic Representation in the Newborn Monkey Superior Colliculus
M. T. Wallace, J. G. McHaffie, and B. E. Stein 2732
Absence of a Prevalent Laminar Distribution of IPSPs in Association Cortical Neurons of Cat
D. Contreras, N. Dürmüller, and M. Steriade 2742
Monaural Spectral Contrast Mechanism for Neural Sensitivity to Sound Direction in the Medial Geniculate Body of the Cat
T. J. Imig, P. Poirier, W. A. Irons, and F. K. Samson 2754
Direction Selectivity of Synaptic Potentials in Simple Cells of the Cat Visual Cortex
B. Jagadeesh, H. S. Wheat, L. L. Kontsevich, C. W. Tyler, and D. Ferster 2772

RAPID COMMUNICATIONS

Axotomy Increases the Excitability of Dorsal Root Ganglion Cells With Unmyelinated Axons
J.-M. Zhang, D. F. Donnelly, X.-J. Song, and R. H. LaMotte 2790

Increase of Extracellular Dopamine in Primate Prefrontal Cortex During a Working Memory Task
M. Watanabe, T. Kodama, and K. Hikosaka 2795
NMDA Receptor Involvement in Neuroplastic Changes Induced By Neonatal Capsaicin Treatment in Trigeminal Nociceptive Neurons
C. Y. Chiang, J. W. Hu, and B. J. Sessle 2799
Epileptogenesis Following Neocortical Trauma From Two Sources of Disinhibition
L. Yang and L. S. Benardo 2804
Primate Head-Free Saccade Generator Implements a Desired (Post-VOR) Eye Position Command by Anticipating Intended Head Motion
J. D. Crawford and D. Guitton 2811
Gain Adaptation of Eye and Head Movement Components of Simian Gaze Shifts
J. O. Phillips, A. F. Fuchs, L. Ling, Y. Iwamoto, and S. Votaw 2817

NO. 6. DECEMBER 1997

Functional Role of Peptidergic Anterior Lobe Neurons in Male Sexual Behavior of the Snail *Lymnaea Stagnalis*
P.A.C.M. De Boer, A. Ter Maat, A. W. Pieneman, R. P. Croll, M. Kurokawa, and R. F. Jansen 2823
Mechanisms of Within- and Cross-Modality Suppression in the Superior Colliculus
D. C. Kadunce, J. W. Vaughan, M. T. Wallace, G. Benedek, and B. E. Stein 2834
Intrinsic Membrane Characteristics Distinguish Two Subsets of Nociceptive Modulatory Neurons in Rat RVM
A. Zagon, X. Meng, and H. L. Fields 2848
Role of Neuropeptides Encoded on CDCH-1 Gene in the Organization of Egg-Laying Behavior in the Pond Snail, *Lymnaea stagnalis*
P. M. Hermann, R.P.J. de Lange, A. W. Pieneman, A. ter Maat, and R. F. Jansen 2859
Estimating the Distribution of Synaptic Reliabilities
E. P. Huang and C. F. Stevens 2870
Encoding of Object Curvature by Tactile Afferents From Human Fingers
A. W. Goodwin, V. G. Macefield, and J. W. Bisley 2881
Perceptual Learning of Spatial Localization: Specificity for Orientation, Position, and Context
R. E. Crist, M. K. Kapadia, G. Westheimer, and C. D. Gilbert 2889
Functional Development of Intrinsic Properties in Ganglion Cells of the Mammalian Retina
G.-Y. Wang, G.-M. Ratto, S. Bisti, and L. M. Chalupa 2895
Responses of MT and MST Neurons to One and Two Moving Objects in the Receptive Field
G. H. Recanzone, R. H. Wurtz, and U. Schwarz 2904
Analysis of AMPA Receptor Properties During Postnatal Development of Mouse Hippocampal Astrocytes
G. Seifert, M. Zhou, and C. Steinhäuser 2916
Reorganization of the Raccoon Cuneate Nucleus After Peripheral Denervation
D. D. Rasmusson and S. A. Northgrave 2924
Characterization of Gating and Peptide Block of *mSlo*, a Cloned Calcium-Dependent Potassium Channel
D. A. Sullivan, M. H. Holmqvist, and I. B. Levitan 2937
Neural Circuit Mediating Tentacle Withdrawal in *Helix aspersa*, With Specific Reference to the Competence of the Motor Neuron C3
S. A. Prescott, N. Gill, and R. Chase 2951

Two Types of ACh Receptors Contribute to Fast Channel Gating on Mouse Skeletal Muscle
D. Shepherd and P. Brehm 2966
Stretch of Quadriceps Inhibits the Soleus H Reflex During Locomotion in Decerebrate Cats
J. E. Misiaszek and K. G. Pearson 2975
Directional Control of Planar Human Arm Movement
G. L. Gottlieb, Q. Song, G. L. Almeida, D.-A. Hong, and D. Corcos 2985
Kinetics of Muscarinic Reduction of I_{sAHP} in Hippocampal Neurons: Effects of Acetylcholinesterase Inhibitors
Y. Zhang, P. L. Carlen, and L. Zhang 2999
Somatostatin Depresses Excitatory but not Inhibitory Neurotransmission in Rat CA1 Hippocampus
M. K. Tallent and G. R. Siggins 3008
Heterogeneous Voltage Dependence of Inward Rectifier Currents in Spiral Ganglion Neurons
Z.-L. Mo and R. L. Davis 3019
Metabotropic Glutamate Receptors Regulate *N*-Methyl-D-Aspartate-Mediated Synaptic Transmission in Nucleus Accumbens
G. Martin, Z. Nie, and G. R. Siggins 3028
Metabotropic Glutamate Receptors Are Involved in Long-Term Potentiation in Isolated Slices of Rat Medial Frontal Cortex
R. M. Vickery, S. H. Morris, and L. J. Bindman 3039
Motor Patterns and Kinematics During Backward Walking in the Pacific Giant Salamander: Evidence for Novel Motor Output
M. A. Ashley-Ross and G. V. Lauder 3047
Prolonged Firing in Motor Units: Evidence of Plateau Potentials in Human Motoneurons?
O. Kiehn and T. Eken 3061
Heterologous Expression of a P_2x-Purinoceptor in Rat Chromaffin Cells Detects Vesicular ATP Release
B. Hollins and S. R. Ikeda 3069
Stability of Motor-Unit Force Thresholds in the Decerebrate Cat
T. C. Cope, A. J. Sokoloff, S. M. Dacko, R. Huot, and E. Feingold 3077
Topography and Reciprocal Activity of Cerebellar Purkinje Cells in the Uvula-Nodulus Modulated by Vestibular Stimulation
H. Fushiki and N. H. Barmack 3083
Conditioning-Related Protection From Acoustic Injury: Effects of Chronic Deefferentation and Sham Surgery
S. G. Kujawa and M. C. Liberman 3095
Mechanisms of Electrical Coupling Between Pyramidal Cells
E. J. Vigmond, J.L.P. Velazquez, T. A. Valiante, B. L. Bardakjian, and P. L. Carlen 3107
Recurrent Inhibitory Interneurons of the Rabbit's Lateral Posterior-Pulvinar Complex
J. J. Zhu and F.-S. Lo 3117
Voltage-Dependent Conductances in Cephalopod Primary Sensory Hair Cells
A. Chrachri and R. Williamson 3125
Functional Analysis of the Sensory Motor Pathway of Resistance Reflex in Crayfish I. Multisensory Coding and Motor Neuron Monosynaptic Responses
D. Le Ray, F. Clarac, and D. Cattaert 3133
Functional Analysis of the Sensory Motor Pathway of Resistance Reflex in Crayfish II. Integration of Sensory Inputs in Motor Neurons
D. Le Ray, F. Clarac, and D. Cattaert 3144

Activation and Recovery of the PGE_2-Mediated Sensitization of the Capsaicin Response in Rat Sensory Neurons
J. C. Lopshire and G. D. Nicol 3154
Temporal Summation of C-Fiber Afferent Inputs: Competition Between Facilitatory and Inhibitory Effects on C-Fiber Reflex in the Rat
M. Gozariu, D. Bragard, J.-C. Willer, and D. Le Bars 3165
Glutamate Microstimulation of Local Inhibitory Circuits in the Supraoptic Nucleus From Rat Hypothalamus Slices
J.-P. Wuarin 3180
Insensitivity of V1 Complex Cell Responses to Small Shifts in the Retinal Image of Complex Patterns
T. W. Kjaer, T. J. Gawne, J. A. Hertz, and B. J. Richmond 3187
Experimental and Modeling Study of Na^+ Current Heterogeneity in Rat Nodose Neurons and Its Impact on Neuronal Discharge
J. H. Schild and D. L. Kunze 3198
Amine Modulation of Glutamate Responses From Pyloric Motor Neurons in Lobster Stomatogastric Ganglion
B. R. Johnson and R. M. Harris-Warrick 3210
Mathematical Model of the Human Jaw System Simulating Static Biting and Movements After Unloading
G.E.C. Slager, E. Otten, T.M.G.J. van Eijden, and J.D. van Willigen 3222
Three-Dimensional Analysis of Vestibular Efferent Neurons Innervating Semicircular Canals of the Gerbil
I. M. Purcell and A. A. Perachio 3234
Pharmacological Characterization of Na^+ Influx via Voltage-Gated Na^+ Channels in Spinal Cord Astrocytes
C. R. Rose, B. R. Ransom, and S. G. Waxman 3249
Analysis of Primate IBN Spike Trains Using System Identification Techniques I. Relationship to Eye Movement Dynamics During Head-Fixed Saccades
K. E. Cullen and D. Guitton 3259
Analysis of Primate IBN Spike Trains Using System Identification Techniques II. Relationship to Gaze, Eye, and Head Movement Dynamics During Head-Free Gaze Shifts
K. E. Cullen and D. Guitton 3283
Analysis of Primate IBN Spike Trains Using System Identification Techniques III. Relationship to Motor Error During Head-Fixed Saccades and Head-Free Gaze Shifts
K. E. Cullen and D. Guitton 3307
Electrophysiological Properties of Rat Pontine Nuclei Neurons In Vitro I. Membrane Potentials and Firing Patterns
C. Schwarz, M. Möck, and P. Thier 3323
Electrophysiological Properties of Rat Pontine Nuclei Neurons In Vitro II. Postsynaptic Potentials
M. Möck, C. Schwarz, and P. Thier 3338
Circuitry Underlying AntiOpioid Actions of Orphanin FQ in the Rostral Ventromedial Medulla
M. M. Heinricher, S. McGaraughty, and D. K. Grandy 3351
Regulation of N- and L-Type Ca^{2+} Channels in Adult Frog Sympathetic Ganglion B Cells by Nerve Growth Factor In Vitro and In Vivo
S. Lei, W. F. Dryden, and P. A. Smith 3359
Compartmental Model of Vertebrate Motoneurons for Ca^{2+} -Dependent Spiking and Plateau Potentials Under Pharmacological Treatment
V. Booth, J. Rinzel, and O. Kiehn 3371

Behavioral Function of Glutamatergic Interneurons in the Feeding System of *Lymnaea*: Plateauing Properties and Synaptic Connections with Motor Neurons
M. J. Brierley, K. Staras, and P. R. Benjamin 3386
Glutamatergic N2v Cells Are Central Pattern Generator Interneurons of the *Lymnaea* Feeding System: New Model for Rhythm Generation
M. J. Brierley, M. S. Yeoman, and P. R. Benjamin 3396
Glutamate is the Transmitter for N2v Retraction Phase Interneurons of the *Lymnaea* Feeding System
M. J. Brierley, M. S. Yeoman, and P. R. Benjamin 3408
Behavior-Dependent Activities of a Central Pattern Generator in Freely Behaving *Lymnaea stagnalis*
R. F. Jansen, A. W. Pieneman, and A. ter Maat 3415
Modulation of Multiple Potassium Currents by Metabotropic Glutamate Receptors in Neurons of the Hypothalamic Supraoptic Nucleus
L. A. Schrader and J. G. Tasker 3428

RAPID COMMUNICATIONS

Receptive Field Changes After Strokelike Cortical Ablation: A Role for Activation Dynamics
S. J. Sober, J. M. Stark, D. S. Yamasaki, and W. W. Lytton 3438
Frequency-Dependent Information Flow From the Entorhinal Cortex to the Hippocampus
T. Gloveli, D. Schmitz, R. M. Empson, and U. Heinemann 3444
Dopaminergic Modulation of Inhibitory Glutamate Receptors in the Lobster Stomatogastric Ganglion
T. A. Cleland and A. I. Selverston 3450
On the Detection and Measurement of Synchrony in Large Neural Populations by Coherence Analysis
C. N. Christakos 3453
Time-Dependent Changes in Excitability After One-Trial Conditioning of *Hermissenda*
T. Crow and V. Siddiqi 3460
Imaging of Calcium in *Drosophila* Larval Motor Nerve Terminals
S. Karunanithi, J. Georgiou, M. P. Charlton, and H. L. Atwood 3465
Contribution of Auditory Cortex to Acoustical Orientation in Cats Under Conditions of Discordant Auditory Reafference
R. E. Beitel 3468
Loss of Long-Lasting Potentiation Mediated by Group III mGluRs in Amygdala Neurons in Kindling-Induced Epileptogenesis
V. Neugebauer, N. B. Keele, and P. Shinnick-Gallagher 3475
Right-Left Interactions Between Rostral Scratch Networks Generate Rhythmicity in the Preenlargement Spinal Cord of the Turtle
S. N. Currie and G. G. Gonsalves 3479
Inhibition of Dendritic Calcium Influx by Activation of G-Protein–Coupled Receptors in the Hippocampus
H. Chen and N. A. Lambert 3484
Corticofugal Amplification of Subcortical Responses to Single Tone Stimuli in the Mustached Bat
Y. Zhang and N. Suga 3489
Monkey Posterior Parietal Cortex Neurons Antidromically Activated From Superior Colliculus
M. Paré and R. H. Wurtz 3493
Muscle Fibers in Regenerating Crayfish Motor Nerves
J. Pearce, K. M. Krause, and C. K. Govind 3498

Local Field Potential Oscillations in Primate Cerebellar Cortex During Voluntary Movement
J.-P. Pellerin and Y. Lamarre 3502
Bidirectional Electrical Coupling Between Inspiratory Motoneurons in the Newborn Mouse Nucleus Ambiguus
J. C. Rekling and J. L. Feldman 3508
Subject Index to Volume 78 3511
Author Index to Volume 78 3527